Fermilab View of SMTF, Role in the ILC, etc.

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SMTF Collaboration Meeting @ JLab
September 30, 2004

The Fermilab Long Range Plan

- The Fermilab Director established the Fermilab Long Range Planning Committee (FLRPC) in the spring of 2003. The committee report is available at:
  http://www.fnal.gov/directorate/Longrange/Long_range_planning.html

- The overarching vision is that Fermilab will remain the primary site for accelerator-based particle physics in the U.S. in the next decade and beyond.
  - As host to a linear collider Fermilab would be established as a world center for the physics of the energy frontier for decades.
  - If the linear collider is constructed elsewhere, or delayed, Fermilab would strive to become a world center of excellence in neutrino physics, based on a (SClinac) multi-MW "Proton Driver", still with significant LC participation.

Fermilab is pursuing linear collider and proton driver R&D in parallel. The cold decision allows close alignment of these paths.

Fermilab and the ILC

- The ILC is established within the FLRP as the primary goal. However, in the event of delay the Proton Driver would provide a forefront physics program while at the same time advancing preparations for an ILC.
- Fermilab has publicly expressed a desire to bid for ILC host laboratory.
- Fermilab has submitted a bid to host the GDE/CT (July 1, 2004).
- Fermilab stated publicly to the ITRP “In the event of a cold decision Fermilab would be ready and able to assume the leadership role in establishing a U.S. collaboration to push the SCRF development under the aegis of an international LC organization.”

Following the cold technology decision Fermilab, with help from our collaborating institutions, is now preparing to follow through on that commitment

Fermilab and the SMTF

The Next Steps

- The first imperative is establishment of US-based capability in the fabrication of high gradient superconducting accelerating structures.
  - Expanding upon existing scrf expertise at: Argonne, Cornell, Fermilab Jefferson Lab

- Establishment of the SMTF (Superconducting Module Test Facility).
  - Centerpiece of the US effort on high gradient SCRF
  - National collaboration of major DOE and NSF laboratories and universities.
  - EOI in preparation, goal is submission to Fermilab Director ~10/1
  - Will propose construction of SMTF at Fermilab (Meson Area)

- From Fermilab point of view SMTF is the primary mechanism for integrating our ILC and PD R&D activities.

Fermilab Perspective on SMTF

- What is SMTF?
  - The primary motivation is development of U.S. capabilities in support of ILC and other scrf based projects of interest to U.S. laboratories.
  - Fermilab views SMTF as a facility. It is meant to be responsive to the needs of the U.S. scrf-based accelerator community.
    - ➢ Common infrastructure and facilities for testing of state-of-the-art superconducting acceleration rf components.
  - ILC, Proton Driver, 4th generation light sources, ERL's, etc are viewed as distinct from SMTF. However, these activities and SMTF are very closely coupled, and will require very close coordination in their execution.

    ⇒The line between what is SMTF and what is ILC, PD, light source, etc. may be somewhat arbitrary. Nonetheless, it the line will have to be defined.

Fermilab Perspective on SMTF

- Fermilab role
  - Fermilab has significant infrastructure that we will offer to SMTF, primarily
    - available floor space
    - cryogenic capacity (currently 60 W at 2K)
    - power & water
    - controls & safety system
    - electron source
  - Fermilab's particular interests relative to SMTF supported programs are the ILC and PD.
  - We recognize that the creation of an infrastructure for ILC and PD development will have application in other areas. We encourage the broader look at other areas of applicability

Fermilab Perspective on SMTF

- How should the work organized?
  - The ILC collaboration should ensure that SMTF meets their needs in the area of cryomodule development.
  - Fermilab will ensure that the SMTF meets the needs of the PD program.
  - The non-relativistic ions community should ensure that their need are properly reflected in SMTF.
  - The light source community should ensure that their requirements for a CW facility are properly reflected in the SMTF proposal.
  - The SMTF collaboration provides an umbrella for the integration of these efforts.
  - It will probably be necessary to maintain distinct funding streams for the individual activities.

Fermilab Perspective on SMTF

- SMTF organization and funding
  - SMTF will likely be a "project" with a Project Manager, WBS, reporting, etc.
  - Associated with the project will be a collaboration. Options for the organization, including the interaction with ILC, PD, RIA, light sources, etc., include a spokesperson, an inter-laboratory steering committee, etc.
  - Can either funnel SMTF $$ through Fermilab to collaborating institutions (via MOUs) or direct fund institutions per guidance of PM or both. Funding for the associated R&D projects supported by SMTF is likely to follow their own distinct streams.

Fermilab Perspective on SMTF
Next Steps

- Fermilab expects to discuss with DOE how to proceed on SMTF once the EOI has been received. Support from the other laboratories, in particular those funded through NP or BES, would be valuable at this time.
- Fermilab expects to ask for a formal proposal addressing:
  - Proposed scope of work
  - Infrastructure requirements
    - Note: Existing cryo infrastructure at Meson is not sufficient to support CW scrf in the short term. The CW proponents should look closely to determine if SMTF is the most efficient way to achieve their goals.
  - Proposed schedule
  - Resource requirements
  - Division of responsibility
- Goal should be to have something through the system that can be supported formally in FY06.
  - Fermilab will start with infrastructure improvements in Meson in FY05